DELONE, B.N.; RYSHKOV, S.S.

Solution of the problem of the loosest latticed covering for a four-dimensional space by identical spheres. Dokl. AN SSSR 152 no.3:523-524 S '63. (MIRA 16:12)

1. Matematicheskiy institut im. V.A.Steklova AN SSSR. 2. Chlen-korrespondent AN SSSR (for Delone).

DELONE, B.N.; SANDAKOVA, N.N.; RYSHKOV, S.S.

Optimal cubature lattice for functions of two variables that are smooth on all sides. Dokl. AN SSSR 162 no.6:1230-1233 Je '65. (MIRA 18:7)

1. Chlen-korrespondent AN SSSR (for Delone).

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ACC NR: AP6012032 SOURCE CODE: UR/0020/65/161/003/0511/0514

AUTHOR: Delone, B. N. (Corresponding member AN SSSR)

ORG: none

32

B

TITLE: Supplement to my 1933 work on regular crystal arrangement

21,44,55

18

SOURCE: AN SSSR. Doklady, v. 161, no. 3, 1965, 511-514

TOPIC TAGS: crystal lattice structure, vector

ABSTRACT: The author states that the present article is in response to frequent inquiries from foreign crystallographers as to how to express the vectors of a crystallographic Bravais n-hedral (i.e., an n-hedral formed by the edges of a Bravais parallelepiped) by vectors of an arbitrary initial-base lattice n-hedral. The system names used by the author are cubic, quadratic, orthogonal, monoclinic, triclinic, rhombohedral and hexagonal, designated respectively by the letters K, Q, O, M, T, R, H. Individual types of lattices in the same system are donated by subscripts to these letters (e.g., M_1, M_2, M_3, ..., M_6) chosen arbitrarily by the author. A rule is stated for vector transformation in the reduction of a tetrahedral symbol, and examples are given. The article also solves the question of a single-valued choice of a Bravais n-hedral in the case of monoclinic and triclinic lattices, and there are two pages of illustrations. Orig. art. has: 12 figures. [JPRS]

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18
B

AUTHOR: Delone, B.N. (Corresponding member AN SSSR); Sandakova, N. N.; Ryshkov, S. S.

ORG: none

TITLE: Optimal cubature lattice for completely smooth functions of two variables

SOURCE: AN SSSR. Doklady, v. 162, no. 6, 1965, 1230-1233

TOPIC TAGS: differential calculus, mathematic transformation, hodograph

ABSTRACT: The following theorem is proved: The lattice Γ_1^2, constructed on a right triangle, is a two-dimensional optimum lattice for any $m \geq 2$. Methods of differential calculus, as well as two previously developed lemmas, are used for the proof: 1) The sum $\sum 1/r^{2m}$, for $m \geq 2$, for any vertex of a right triangle centered on point 0 is minimum with respect to all triangles obtained from it by equi-affine transformation, differing little from the initial triangle and leaving point 0 in place. 2) Let there be an n-dimensional lattice Γ having minimum distances a between its points. If, for its equi-affine lattice Γ', the minimum a' is sufficiently small ($a' \lambda$ a, where λ is less than some $\lambda_0 < 1$) then $S_{m, \Gamma'}$ $S_{m, \Gamma}$. The constant λ_0 is

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analyzed in detail. Finally, a hodograph is shown for hyperbolic rotations for which the component introduced by the equi-affine representation of a right triangle centered at point O and a unit leg is equal to the component introduced by the triangle itself. Orig. art. has: 2 figures, 1 formula. [JPRS]

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Davy*dova, O.A.

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